

PRIMARY RENAL LYMPHOMA IN DOMESTIC CAT (*Felis catus*): CASE REPORT

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ABSTRACT

Renal primary neoplasms in cats are rare and account for less than 2% of all cancers, the majority of malignant feature. Hematopoietic tumors are the most common in cats and 90% are diagnosed as lymphoma, being between 30 and 50% of all malignant tumors found in this species. This cancer originates in lymphoid cells found in solid organs such as lymph nodes, liver and intestine, and is currently the most common cancer in domestic cats with an average age of 11 years. The most common forms of presentation are mediastinal, nodal, extranodal and digestive. Clinical signs are diverse and related to the anatomical site in which the disease develops. Chemotherapy is the treatment for systemic forms, while radiotherapy and surgery associated or not with chemotherapy treatments are indicated for localized forms. The prognosis of this disease is variable, depending on the clinical condition of the animal, the type and stage of lymphoma and response to treatment. The objective of this study was to conduct a case report of a cat, male, mixed breed, neutered, 13 years old, who presented the following clinical signs: cachexia, increased abdominal volume, dehydration, polyuria, polydipsia and loss of appetite. The pathology and clinical findings confirmed the renal lymphoma; the primary renal lymphoma was confirmed primarily by the lack of involvement of other sites of cancer.

Keywords: cats, hematopoietic cancer, lymphoma.

LINFOMA RENAL PRIMÁRIO EM GATO DOMÉSTICO (*FELIS CATUS*): RELATO DE CASO**RESUMO**

Neoplasias primárias renais em gatos são raras e representam menos de 2% de todos os tipos de câncer, sendo a maioria maligna. Tumores hematopoiéticos são os mais comuns em gatos e 90% são diagnosticados como linfoma, estando entre 30 e 50% de todos os tumores malignos encontrados nesta espécie. Esse tipo de câncer se origina nas células linfóides encontrados em órgãos sólidos, como gânglios linfáticos, fígado e intestino, e atualmente é o câncer mais comum em gatos domésticos com idade média de 11 anos. As formas mais comuns de apresentação são mediastinal, nodal, extranodal e digestiva. Os sinais clínicos são variados e relacionados com a localização anatômica em que a doença se desenvolve. A quimioterapia é o tratamento indicado para as formas sistêmicas, enquanto a radioterapia e a cirurgia associada ou não à quimioterapia são indicados para formas localizadas. O prognóstico desta doença é variável e depende da condição clínica do animal, o tipo e estágio de linfoma e da resposta ao tratamento. O objetivo deste trabalho foi realizar o relato de caso de um gato macho, sem raça definida, castrado, de 13 anos, que apresentava os seguintes sinais clínicos: caquexia, aumento do volume abdominal, desidratação, poliúria, polidipsia e perda de apetite.

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Os achados clínicos e patológicos confirmaram o linfoma renal; o linfoma renal primário foi confirmado principalmente pela falta de envolvimento de outros tipos de câncer.

Palavras-chave: gatos, câncer hematopoiético, linfoma.

LINFOMA RENAL PRIMARIO EN GATO DOMÉSTICO (*FELIS CATUS*): REPORTE DE CASO

RESUMEN

Neoplasias primarias renales en los gatos son raras y representan menos del 2% de todos los tipos de cáncer, siendo el más maligno. Tumores hematopoyéticos son las más comunes en los gatos y el 90% son diagnosticados de linfoma, siendo entre el 30 y el 50% de todos los tumores malignos en esta especie. Este tipo de cáncer que se origina en células linfoides de órganos sólidos, como los ganglios linfáticos, el hígado y los intestinos, y en la actualidad es el tipo de cáncer más común en los gatos domésticos con una edad promedio de 11 años. Las formas más comunes de presentación son nodal, mediastínica, extranodal y digestivo. Los signos clínicos son muy variados y relacionados con la localización anatómica donde se desarrolla la enfermedad. La quimioterapia es el tratamiento dado a la forma sistémica, mientras que la radioterapia y la cirugía asociada o no a quimioterapia están indicadas para formas localizadas. El pronóstico de esta enfermedad es variable y depende de la condición clínica del animal, el tipo y la etapa del linfoma y respuesta al tratamiento. El objetivo de este trabajo fue describir el caso clínico de un gato macho, raza mezclada, castrado, de 13 años, que tenía los siguientes signos clínicos: caquexia, aumento de volumen del abdomen, deshidratación, poliuria, polidipsia y pérdida de apetito. Los hallazgos clínicos y patológicos confirmaron linfoma renal; el linfoma renal primario fue confirmado principalmente por la falta de participación de otros tipos de cáncer.

Palabras clave: gatos, cáncer hematopoyético, linfoma.

INTRODUCTION

Hematopoietic tumors are most common in domestic cats and 90% are classified as lymphoma (1). In this species lymphoma acquires several presentations, including the digestive form, mediastinal, nodal and extranodal. The etiology of lymphoma is multifactorial, since many factors can influence the development of this cancer; for example, Bertone et al. (2) shows a significant risk in cats living at home with exposure to smoke from their owners.

Cats with feline leukemia virus (FeLV) correspond to 14% to 25% of cases of feline lymphoma and infection by Feline Immunodeficiency Virus (FIV) can increase the incidence of disease. Contrary to direct role in tumor genesis of FeLV, FIV plays an indirect role, causing immunosuppression body. Lymphomas associated with FIV are likely to be B cells (B lymphocytes), whereas FeLV-associated lymphomas are predominantly T-cells (T lymphocytes). Genetic and molecular factors involved in the development of feline lymphoma include altering the expression of the tumor suppressor gene, changes in cell proliferation and apoptosis (3).

The average age in cases of feline lymphoma is 11 years although there are cases of animals between 1 and 16 years old. There is also a reference of bimodal presentation, mostly in cats infected with FeLV, with one peak at 2 years of age and another between approximately 10 and 12 (4).

The feline lymphoma can be classified according to their anatomical shape. The digestive lymphoma is characterized by involving gastric, intestinal or lymph nodes, or a combination thereof. It may be present in the form of isolated or diffuse infiltrative mass in large areas. For the colon tumors, lymphoma is the second most common - 41% (5). The mediastinal lymphoma may involve the thymus and the mediastinal or sternal lymph nodes. In cats with thymic pathology, about 63% have lymphoma, and 17% of cats with pleural effusion suffer from the same disease. An uncommon presentation in cats is the nodal involving initially only a peripheral lymph node - represents approximately 4% to 10% of cases. Finally, extranodal form can develop in kidney, nasal cavity, eyes, retrobulbar space, central nervous system, skin, among others (3).

Cats with renal lymphoma, either primary or associated with digestive lymphoma, have an average age of 7.5 years and most animals is FeLV-negative. The cases of renal lymphoma are usually B cells, representing about 5% of all lymphomas (6). A frequent sequel of this form is the neoplastic invasion of the central nervous system. Renal lymphoma is, in most cases, bilateral; the kidneys are uniformly increased and may be presented irregular palpation. More than half of cats with this condition have signs consistent with renal failure, including polyuria and polydipsia, weight loss, anorexia and depression. The cat with renal lymphoma may present increase in unilateral or bilateral kidneys (7).

The physical examination should always be part of the diagnostic approach besides being made CBC, biochemical profile and animals tested for FIV and FeLV (8).

The imaging diagnostic methods are important not only to obtain a diagnosis, but also to assess the clinical status and then characterize the response to treatment (9). Radiography allows identifying lung and abdominal changes like hepatomegaly, splenomegaly, changes in renal silhouette, abdominal lymphadenopathy with a possible displacement of other organs, intestinal occlusion, presence of a mass and ascites; ultrasound has advantages such as noninvasive assessment of the internal structure of organs and lack of exposure to ionizing radiation (10).

In some cases, a biopsy is required for histopathological analysis, allowing observation of the biological behavior of the tumor. The biopsy may be incisional, excisional or performed through the use of a punch in the case of cutaneous lymphoma (3).

Due to the wide range of histological types and anatomical locations observed in cats with lymphoma, treatment is not consensual or predictable. Generally, the percentage of cats with lymphoma who enjoys a complete response to chemotherapy is between 50% and 70%, the average remission time is 4 months and the median survival is 6 months (7,8).

CASE PRESENTATION

At the veterinary clinic Pet Safe in Teresópolis – RJ - Brazil was attended a male cat, neutered, 13 years old, 3 kg body weight. The main complaint from the owner was weight loss and lack of appetite, polydipsia and polyuria that was going on for five months. Clinical examination showed the animal thinness, apathy, halitosis, pale mucous membranes, dehydration, hypothermia, increased abdominal volume, with the presence of a mass the size of an apple, causing the animal discomfort on palpation. By palpation was not possible to identify the involved organ due to the large volume. It was request a lateral radiograph of the abdomen and chest, complete blood count, urea, creatinine, ALT (alanine aminotransferase), alkaline phosphatase and serology for FIV and FeLV. After the examinations, the animal has been forwarded to fluid therapy and it was recommended that the animal to return the next day for further hydration.

The next morning the owner returned with the animal in shock, coming died an hour later. Necropsy was performed with collection of material for histopathology. The left kidney

was greatly increased and the right kidney atrophied. Furthermore, the presence of serous fluid in the thoracic cavity was observed.

The result of the blood count showed anemia normocytic, normochromic nonregenerative, lymphocytosis and leucopenia, in biochemistry, urea 342mg/dl, creatinine 7 mg/dl, 90UI ALT and alkaline phosphatase 208UI; negative results in serology for FeLV (feline leukemia), and positive serology for FIV (feline immunodeficiency virus).

The radiographic image showed intense enlarged left kidney and atrophy of the right kidney. The material collected for biopsy showed renal lymphoma. In microscopy was observed the massive infiltration of pleomorphic and polygonal neoplastic cells with little cytoplasm, being supported by stromal beams replacing parenchymal cells. The nucleus were presented in various forms, ovoid, fusiform or round, with dense chromatin; showed high mitotic index with atypical mitosis.

Faced with the histopathological features and the absence of involvement of other neoplastic sites, it was confirmed the primary renal lymphoma.

DISCUSSION AND CONCLUSIONS

Hematopoietic tumors occur frequently in domestic cats and is greatly evidenced lymphoma (1). The etiology of lymphoma is not unique, being classified as multifactorial and may have different clinical forms (2), so it is difficult to determine the precise cause, even if you have a good anamnesis.

It is possible to have a relationship between the presence of lymphoma and animals infected with FIV and FeLV viruses. Bridgeford et al. (11) demonstrated an association between the presence of infection with *Helicobacter* spp and feline gastric lymphoma, taking the hypothesis of these infectious agents as the cause of this neoplasia. Furthermore, it is known that genetic and molecular factors are involved in neoplasia, thus indicating another contributing factor to the onset of disease (3).

Most of the animals showing the disease are elderly animals as reported by Vezzali et al. (4), which was also observed in our clinical case. Lymphomas have various clinical presentations, and among them, renal lymphoma representing 5% of cases and can be unilateral or bilateral (6) however, some authors, such as Dalek et al. (12) claim that the renal lymphoma in cats is always bilateral, which was not observed in the clinical case where the cat had the unilateral renal lymphoma.

Imaging studies are important in the diagnosis of lymphoma, although an accurate result is not possible; in this case it was demonstrated a large increase in kidney volume, suggesting neoplastic process. Although there are some treatments that will improve the quality of life and survival of animals (8), this is not always possible because the advanced stage of the disease to which the owners will seek help.

Lymphoma is the hematopoietic cancer most commonly found in cats and should be established a suitable therapeutic protocol, aimed at animal welfare, quality of life and the choice of the owner.

Rarely cured, the treated lymphoma can provide quality of life for a while and increased animal survival. Based on the clinical and histopathological findings, and especially in the absence of other neoplastic sites, we could confirm the diagnosis of primary renal lymphoma in cats.

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